ARINC653 AADL Annex Update

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Context, Rationale

ARINC653

- Avionics standard
- Standardized API (called APEX – APplication EXecutive)
- Central part of the IMA philosophy
- Time & space partitioning

Rationale of ARINC653 annex for AADLv2

- Standardize modeling patterns
- Better modeling & analysis support
- Design associated toolset and framework

From the Last Meeting

Ballot with other annexes

Address most user comments

- Replace ARINC653 by ARINC 653
- Remove multi core examples
- Apply DAL on all software components

Get more user feedback

- Keep the document neutral, avoid subjective statements

Last editions ready to be published

Experiments with the update Annex

Latency Analysis

Analyze latency of inter-partitions communication

Code Generation for commercial ARINC653 OS

Demonstrate code generation for DeOS

Production of kernel- and partition-level code

Use of RESOLUTE to check ARINC653/AADL models

Check Model Compliance

Integration of an ARINC653-dedicated RESOLUTE library

Conclusion

Standardized modeling patterns for ARINC653 systems

- Support in OSATE and Ocarina
- Third-party support for implementation production

Generic annex that can be reused

- ARINC653 and MILS architectures
- Tailoring for other partitioned architectures

Exercised and demonstrated

- Architecture consistency checks and validation (i.e. latency)
- Code Generation of partitions and kernel

Links & Useful Information

AADL website – http://www.aadl.info

AADL wiki - https://wiki.sei.cmu.edu/aadl/index.php/Main_Page

ARINC653 AADL annex standard - http://standards.sae.org/as5506/2/

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